Smallpox: Differential Diagnosis

General Information

Transmission
• Direct contact with lesions, body fluids or contaminated bedding and towels
• Droplet inhalation (within 6 feet)

Contagious: YES
• With onset of fever and rash
• Once all scabs have fallen off, the patient is no longer contagious

Incubation Period: 12-14 Days

Initial Symptoms
• High fever (101–104°F), malaise, head and body aches

Rash Characteristics
• Begins on face which spreads to arms, legs, hands and feet. All lesions on any one part of the body are in the same stage of development
• 3rd day: Rash becomes raised bumps
• 4th day: Become fluid-filled with a depressed center (bellybutton-like)

Can be Misidentified as Chickenpox

Specimen Collection Procedures
ONLY vaccinated individuals should perform collection of suspect smallpox specimens

Personal Protective Equipment (PPE):
Gloves and N95 Respirator

Specimens to be Collected
(A detailed specimen collection protocol and algorithm can be obtained through the local health department or the NYS Biodefense Laboratory)

• Digital Photos: Prior to collecting specimens, upload digital photos to Epi-Photo (NYSDOH secure site) at:
https://commerce.health.state.ny.us/hpn/hanweb/hanapp.shtml#photo
for further differential diagnosis by State Epidemiology and communication with the Local and State DOH and NYS Biodefense Laboratory

• Acceptable specimen types: Swab, touch prep and scabs

Collection Kit Information
Contact your Local Health Department to determine if a specimen needs to be collected and to obtain kit supply and protocols. Kits include all disposable items needed for collection EXCEPT PPE.
Patient Evaluation for Smallpox Infections

Patient with Acute, Generalized Vesicular or Pustular Rash Illness

Institute Airborne & Contact Precautions
Alert Infection Control on Admission

Low Risk for Smallpox
No Febrile Prodrome OR
Febrile Prodrome and <4 MINOR smallpox criteria

Moderate Risk of Smallpox
Febrile Prodrome AND one other MAJOR smallpox criteria
OR
Febrile Prodrome and >4 MINOR smallpox criteria

High Risk for Smallpox
Febrile Prodrome AND Classic smallpox lesions AND
lesions in same stage of development

History and Exam
Highly Suggestive of Varicella

Varicella Testing Optional

Diagnosis Uncertain

Test for VZV and Other Conditions as indicated

Non-Smallpox Diagnosis Confirmed Report Results to Infx Control

No Diagnosis Made
Ensure Adequacy of Specimen ID or Derm Consultant Re-Evaluates Patient

Cannot R/O Smallpox
Contact Local/State Health Dept

ID and/or Derm Consultation VZV +/- Other Lab Testing as indicated

Public Health Response Team Collects Specimens and Advises on Management

Testing at Wadsworth Center

NOT Smallpox Further Testing

SMALLPOX

Major Smallpox Criteria

Febrile prodrome: Occurring 1 - 4 days before rash onset, Fever >101°F AND at least one of the following: prostration, headache, backache, chills, vomiting or severe abdominal pain

Classic smallpox lesions: Deep-seated, firm/hard vesicles or pustules, may be umbilicated or confluent

Lesions in same stage of development: On any one part of the body all lesions are in the same stage of development (i.e.: all vesicles or all pustules)

Minor Smallpox Criteria

Centrifugal distribution with greatest concentration of lesions on face and distal extremities

First lesions on the oral mucosa, face or forearms

Slow evolution of lesions: macules to papules to pustules

Lesions on the palms and soles

Patient appears toxic or moribund

FEVER
2 to 4 days before rash

At time of rash

RASH
• Appearance
  Pocks in same stage
  Slow
  • Distribution
    More pocks on arms and legs
    More pocks on body
  • On palms and soles
    Usually present
    Usually absent

DEATH
Usually 1 in 10 die
Very uncommon

Source: Centers for Disease Control and Prevention (CDC)